



North Pole Refinery  
Flint Hills Resources Alaska, LLC  
1100 H & H Lane  
North Pole, Alaska 99705  
907.488.2741

CO-061-11

Return Certified Receipt # 7009 1410 0002 2822 3052

April 14, 2010

Ms. Renee Evans  
Environmental Engineer Associate  
Wastewater Discharge Program  
Alaska Department of Environmental Conservation  
555 Cordova Street  
Anchorage, AK 99501

**RE: Flint Hills Resources Alaska LLC, North Pole Refinery  
First Quarter 2011 Wastewater Compliance Report**

Dear Ms. Evans:

Enclosed is the Flint Hills Resources Alaska, LLC North Pole Refinery's (FHRA) First Quarter 2011 Wastewater Compliance Report. As noted previously, certain tests are performed using accepted methods other than EPA test methods. Table 1 summarizes the test methods used for Tables 1A, 1B, and 1C. All other test methods are noted on the enclosed tables.

#### **Addition of High Phosphate Fertilizer, Hydrogen Peroxide and Ferric Chloride**

High-phosphate fertilizer is added daily into the wastewater stream upstream of the submerged fixed-film bioreactors. Phosphate fertilizer use for the first quarter of 2011 was 179.8 gallons.

Hydrogen peroxide is added into Lagoons A and C to increase the oxygen content available to microorganisms and to assist in the arsenic treatment process. Hydrogen peroxide use for the first quarter of 2011 was 11,275 gallons.

Ferric chloride is added to the wastewater flow stream in the first reaction chamber of the CPS for the purpose of arsenic co-precipitation. Ferric chloride use in the CPS process for the first quarter of 2011 was 1,210 gallons.

A 50% caustic solution is added to the wastewater flow stream in the second reaction chamber of the CPS for the purpose of more efficient arsenic removal. Caustic use in the first quarter of 2011 was 1,264 gallons.

#### **Inspections**

No ADEC, City of North Pole (CNP) or EPA inspections were conducted during the first quarter.

#### **Tables**

Table 1 summarizes the daily monitoring results for the quarter. This table also includes analytical methods used. Determination of the sulfolane content in refinery wastewaters is performed by gas chromatography using flame ionization detection (FID). The method used is based on EPA Method 8000B.

Tables 1A, 1B, and 1C list the individual daily monitoring results. These tables also include daily effluent temperatures and flow rates.

Table 2A and 2B list the total metals monitoring results performed by the laboratory and in accordance with the EPA test methods noted on Table 2A and 2B. The permit does not specify any required analytical method for metals analysis, but 40 CFR 136.3, referenced in the permit, identifies EPA Method 200.7 as an acceptable analytical method for metals. SGS and TestAmerica, formerly NCA, Laboratories analyze metals results using EPA Method 200.8, which allows for lower reporting limits than Method 200.7 while performing a full scan for numerous elements. Table 3 lists the BTEX monitoring results.

Table 4 lists the December 9, 2010 phenolics and total cyanide monitoring results.

Tables 5A, 5B, and 5C list the February 3, 2011 Priority Pollutant Scan (PPO) monitoring results for parameters listed in 40 CFR Part 122, Appendix D, Table II except for pesticides. TestAmerica performed the analyses using Methods 624 and 625.

Table 5D and 5E list the February 3, 2011 monitoring results for parameters not listed in 40 CFR Part 122, Appendix D, Table II, but that were reported by TestAmerica. Due to an oversight, TestAmerica reported the analytical results for parameters outside of the scope of the requested analytical profile for this sample.

Additional analytical results are tabulated in Addendum A of this report. Addendum A includes the requested arsenic data from weekly analyses of the wastewater influent and effluent streams.

### **Notifications During the Quarter**

One incident occurred during the quarter and was reported on February 22, 2011 to your office, the Environmental Protection Agency, and the City of North Pole (CNP). Approximately 3,755 gallons of treated wastewater with pH levels below 7 pH units was discharged to the CNP during two separate events on February 22<sup>nd</sup>. The incident occurred after clarifier maintenance was completed on the CPS unit during the night shift on February 21, 2011. The chemical pumps used for control of the wastewater effluent pH failed to operate properly when the CPS unit was started up after the maintenance. Operations personnel shut down flow to the CNP at 23:53 on February 21<sup>st</sup> and placed the wastewater plant in recirculation at 1:53 am on February 22, 2011. The operations personnel manually controlled the chemical pumps while the control failure was being analyzed to determine the root cause. Once the system was placed in manual the wastewater effluent pH readings stabilized in the 8.05 to 8.80 range. Flow to the CNP was reinstated at 3:10 am to prevent freeze-up of the effluent piping to the city and approximately 770 gallons of water with pH levels in the 8.05 to 8.80 range was discharged to the CNP. The FHRA lab continued to monitor the pH on an hourly basis to control/verify pH levels were within permit limits. When the pH of the sample collected at 5:00 am was reviewed, it was determined that the pH had dropped to 6.87 causing the first pH exceedance. Flow was discontinued until 6:00 am when the pH levels returned to the 7-9 range. When it was determined that the pH had increased to 8.93, the flow to the CNP was discontinued to avoid discharging wastewater below the pH limit. Just before 10:53 am, the control room operator identified that 15 gpm was still flowing to the CNP wastewater plant. At this time operations personnel began to investigate the cause of the flow indication and discovered that a bypass valve was open on the flow valve that controls flow to the CNP which allowed approximately 2,985 gallons to flow to the CNP while pH levels dropped from 7.00 to 4.60 causing the second exceedance. When the flow was stopped at 10:53 am, the pH level had risen to 6.40. A Field Buss Modulator (FBM) card failed which led to the loss of control. The FBM was immediately repaired upon discovery and placed back into service. Once the FBM was repaired, the pH control went back to normal. A Taproot investigation conducted on February 24, 2011 identified the failure to close the bypass valve as the causal factor for the pH exceedance. A procedure for bypassing the wastewater flow will be developed and all operators will receive training on the new procedure.

While conducting a check on analytical procedures with the North Pole Refinery laboratory, it was determined that the laboratory has been reporting the Ammonia as NH3 rather than Ammonia as Nitrogen (N) as required by our permit. By reporting Ammonia as NH3, we have been over reporting the concentration of ammonia as N in the wastewater. This error has been corrected and the lab is now analyzing for Ammonia as N and will be reporting the ammonia as N in future analytical reports.

If you have any questions or comments, please contact Donna Stevison at 907-488-5105.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,



FOR DAREN KNOWLES

Daren Knowles  
EH&S Manager  
Flint Hills Resources Alaska, LLC

Enclosures: First Quarter 2011 Wastewater Compliance Report  
Addendum A—Additional Wastewater Influent Arsenic and Iron Data

cc: M. Lee (EPA)  
D. Isaacson (N. Pole)  
M. Pollen (NTL)  
S. Stokes (ADEC)  
4.N.25.J.2011

TABLE 1. Summary of Average/Maximum Monitoring Results

Parameter	Method	MRL	Units	Limits	January	February	March
Flow	Flow Transmitter	1	GPM	65 Avg	40.0	36.5	31.8
Temperature	Temperature Transmitter	1	Deg F	Report	60.0	63.6	67.0
Settleable Solids	APHA 2540-F	0.05	ml/L	Report	1.20	0.15	3.50
pH	APHA 4500-H/B	0.01	pH Units	7.0 - 9.0	7.4 - 8.4	7.6 - 8.8	7.5- 8.1
Conductivity	APHA 2510B	1	umhos/cm	15,000 Max	7,583	7,595	7,089
Chemical Oxygen Demand	HACH 2-160	2	mg/L	1,000 Avg	101	108	226
Oil and Grease	EPA 1664A	3.5	mg/L	100 Max	3.6	3.5	3.5
Ammonia (as N)	APHA 4500 NH3 C	1	mg/L	100 Max	46.5	46.7	45.6
Total Suspended Solids	APHA 2540-D	9	mg/L	200 Avg	26.9	23.6	83.2
Biochemical Oxygen Demand	APHA 5210B	6	mg/L	200 Avg	15.0	17.0	20.5
Sulfolane	Gas Chromatography	2.0	mg/L	100 Max	2.0	2.0	2.0
Nitrate (as NO3)	APHA 4110-C	0.5	mg/L	Report	6.8	15.7	17.4
O-Phosphate	APHA 4110-C	0.5	mg/L	Report	1	1.0	0.8

*Italics font indicates exceedance.*

TABLE 1A. Daily Monitoring Results -January 2011

Date	Flow	Temp.	D.O.	Settle.	pH	Conduct.	COD	O & G	Ammonia	TSS	BOD	Sulfolane	Nitrate	O-Phos
1/1/11	25.24	66.00												
1/2/11	28.20	64.24												
1/3/11	37.07	64.42	5.0	0.05	8.0	6665	101	3.5						
1/4/11	44.52	58.76	7.7	0.40	8.0	6673	109							
1/5/11	37.88	56.66	7.2	0.05	8.1	6733	113					2.0		
1/6/11	50.38	53.31	10.9	0.05	8.3	6915	111							
1/7/11	50.73	55.51	10.3	0.05	7.5	6813	105		42.2	27.31				
1/8/11	52.14	52.36												
1/9/11	48.61	52.05												
1/10/11	42.34	52.35	11.4	1.20	7.4	7149	93	3.5						
1/11/11	43.75	53.63	10.0	0.05	7.5	7112	87					2.0		
1/12/11	44.72	52.38	10.3	0.05	7.5	7247	93							
1/13/11	43.04	52.05	10.9	0.05	7.6	7338	99		46.5	15.82	15		13.5	1.0
1/14/11	45.42	52.68	10.5	0.05	8.4	7480	102							
1/15/11	45.39	52.25												
1/16/11	43.68	55.28												
1/17/11	42.72	62.73	8.1	0.05	7.6	7433	88	3.5						
1/18/11	37.36	64.95	8.2	0.05	7.8	7367	88					2.0		
1/19/11	31.68	69.86	5.7	0.05	8.0	7359	100							
1/20/11	33.99	68.42	6.4	0.20	7.8	7061	112		45.6	29.94	15			
1/21/11	31.17	70.12	6.1	0.05	8.0	7057	104							
1/22/11	30.55	73.18												
1/23/11	29.87	72.32												
1/24/11	41.24	64.78	6.4	0.05	7.9	7583	123	3.6						
1/25/11	41.25	63.25	6.6	0.05	8.0	7414	103							
1/26/11	38.48	64.37										2.0		
1/27/11	40.91	63.22							44.5	34.66				
1/28/11	37.67	61.13			8.0	7335	91						0.2	
1/29/11	40.85	55.91												
1/30/11	38.76	56.55												
1/31/11	41.11	55.34	8.0	0.05	8.1	7444	105	3.5						
Average/max	40.0	60.0	8.3	1.20	7.4 - 8.4	7,583	101	3.6	46.5	26.93	15	2.0	6.8	1.0
Units	GPM	deg. F	mg/L	ml/L	pH	umhos/cm	mg/L	mg/L	mg/L as N	mg/L	mg/L	mg/L	mg/L as NO3	mg/L
Limit	65	REPORT	REPORT	REPORT	7.0 - 9.0	15,000 MAX	1,000 AVE	100 MAX	100 MAX	200 AVE	200 AVE	100 MAX	REPORT	REPORT
Frequency	Daily	Daily	Weekdays	Weekdays	Weekdays	Weekdays	2 / Month	Weekly	Weekly	Weekly	2 / Month	Weekly	2 / Month	2 / Month

**Bold type indicates composite sample.**

*Italics font indicates exceedance.*

**Note:** It was determined that the lab has been reporting the ammonia as NH<sub>3</sub> instead of nitrogen as required. As a result, we have over-reported the amount of ammonia being discharged. This error has been corrected and ammonia will now be reported as Nitrogen.



TABLE 1B. Daily Monitoring Results - February 2011

Date	Flow	Temp.	D.O.	Settle.	pH	Conduct.	COD	O & G	Ammonia	TSS	BOD	Sulfolane	Nitrate	O-Phos
2/1/11	41.61	55.74	8.3	0.05	8.1	7307	107							
2/2/11	38.39	56.58	7.2	0.15	8.0	7094	105					2.0		
2/3/11	35.20	56.65	8.5	0.05	8.0	7335	96		46.7	34.1	17			
2/4/11	30.13	56.42	8.5	0.1	8.1	7074	110							
2/5/11	31.98	65.92												
2/6/11	31.69	68.07												
2/7/11	42.21	60.21	8.9	0.05	8.2	7549	129							
2/8/11	42.39	59.83	8.9	0.05	8.3	7523	124	3.5						
2/9/11	40.23	60.94	8.3	0.05	8.2	7240	109					2.0		
2/10/11	42.33	59.98	8.4	0.05	8.3	7478	102		43.8	26.7	17			
2/11/11	42.72	59.92	7.9	0.05	7.6	7341	112							
2/12/11	42.75	60.56												
2/13/11	40.00	61.55												
2/14/11	41.75	60.58	7.8	0.05	7.8	7184	114	3.5						
2/15/11	38.43	63.38	6.5	0.05	7.8	6986	121						20.4	1.0
2/16/11	32.83	67.17	5.9	0.05	7.8	6832	105							
2/17/11	35.11	67.03	6.2	0.05	7.9	7191	99		46.6	24.0				
2/18/11	35.66	67.63	5.2	0.05	7.9	7124	118					2.0		
2/19/11	35.54	67.41												
2/20/11	33.47	68.55												
2/21/11	35.70	67.00												
2/22/11	26.29	66.32	6.9	0.05	8.8	6563	86							
2/23/11	33.30	67.94	5.9	0.05	8.0	6940	103	3.5				2.0		
2/24/11	34.21	67.90	5.5	0.05	8.2	7054	108		46.7	9.8			11.0	1.0
2/25/11	33.78	68.40	3.8	0.05	8.1	7595	97							
2/26/11	35.13	66.25												
2/27/11	33.65	67.03												
2/28/11	35.56	66.25	6.3	0.05	8.2	7052	109	3.5						
Average/max	36.5	63.6	7.1	0.15	7.6 - 8.8	7,595	108	3.5	46.7	23.6	17	2.0	15.7	1.0
Units	GPM	deg. F	mg/L	ml/L	pH	umhos/cm	mg/L	mg/L	mg/L as N	mg/L	mg/L	mg/L	mg/L as NO3	mg/L
Limit	65	REPORT	REPORT	REPORT	7.0 - 9.0	15,000 MAX	1,000 AVE	100 MAX	100 MAX	200 AVE	200 AVE	100 MAX	REPORT	REPORT
Frequency	Daily	Daily	Weekdays	Weekdays	Weekdays	Weekdays	2 / Month	Weekly	Weekly	Weekly	2 / Month	Weekly	2 / Month	2 / Month

**Bold type indicates composite sample.**

*Italics font indicates exceedance*

**Note:** It was determined that the lab has been reporting the ammonia as NH3 instead of nitrogen as required. As a result, we have over-reported the amount of ammonia being discharged. This error has been corrected and ammonia will now be reported as Nitrogen.

TABLE 1C. Daily Monitoring Results - March 2011

Date	Flow	Temp.	D.O.	Settle.	pH	Conduct.	COD	O & G	Ammonia	TSS	BOD	Sulfolane	Nitrate	O-Phos
3/1/11	35.55	66.58	5.7	0.05	8.3	6806	113							
3/2/11	25.85	66.16	5.8	0.05	8.3	6806	106							
3/3/11	17.15	60.38			7.8	6486								
3/4/11	34.82	67.19	5.2	0.05	8.3	7089	132					2.0		
3/5/11	34.37	67.92												
3/6/11	32.12	69.54												
3/7/11	33.23	68.14	6.5	0.05	8.3	7002	116	3.5						
3/8/11	31.51	70.49	5.3	0.05	8.5	6467	105							
3/9/11	31.63	70.07	5.0	0.05	8.1	6307	116							
3/10/11	30.49	70.30	4.3	0.05	8.3	6561	131		42.9	54.0	22.0	2.0		
3/11/11	32.26	71.44	4.0	0.10	8.3	6810	128							
3/12/11	32.64	70.06												
3/13/11	31.29	68.10												
3/14/11	32.89	68.52	3.6	0.20	8.3	6531	307	3.5					19.5	1.0
3/15/11	32.39	67.63	3.1	0.20	8.3	6277	275					2.0		
3/16/11	30.75	70.06	2.6	0.10	8.3	6258	335							
3/17/11	33.15	68.22	3.2	1.20	8.3	6440	312		43.6	87.0	19.0			
3/18/11	30.14	70.79	4.1	1.50	8.4	6455	278							
3/19/11	31.15	70.36												
3/20/11	31.95	71.11												
3/21/11	31.68	70.78	3.8	0.20	8.4	6668	248	3.5						
3/22/11	32.06	66.49	3.7	0.60	8.3	6766	250							
3/23/11	30.01	60.47	5.3	0.05	8.6	6618	307					2.0		
3/24/11	32.83	61.03	7.1	0.05	8.2	6750	250		45.6	81.6				
3/25/11	30.28	64.86	3.8	0.05	8.2	6724	312							
3/26/11	31.18	64.05												
3/27/11	32.41	64.47												
3/28/11	32.95	63.55	5.5	0.05	8.4	6638	302							
3/29/11	34.48	64.94	4.3000002	0.2	8.3999996	6609	251							
3/30/11	34.37	63.44	4.5	3.5	8.3999996	6412	280	3.5				2		
3/31/11	38.87	60.11	7.1	0.05	8.3	6790	323		40.0	110.2			15.3	0.5
Average/max	31.8	67.0	4.7	3.50	7.5- 8.1	7,089	226	3.5	45.6	83.2	20.5	2.0	17.4	0.8
Units	GPM	deg. F	mg/L	ml/L	pH	umhos/cm	mg/L	mg/L	mg/L as N	mg/L	mg/L	mg/L	mg/L as NO3	mg/L
Limit	65	REPORT	REPORT	REPORT	7.0 - 9.0	15,000 MAX	1,000 AVE	100 MAX	100 MAX	200 AVE	200 AVE	100 MAX	REPORT	REPORT
Frequency	Daily	Daily	Weekdays	Weekdays	Weekdays	Weekdays	2 / Month	Weekly	Weekly	Weekly	2 / Month	Weekly	2 / Month	2 / Month

Bold type indicates composite sample.

*Italics font indicates exceedance*

Note: It was determined that the lab has been reporting the ammonia as NH3 instead of nitrogen as required. As a result, we have over-reported the amount of ammonia being discharged. This error has been corrected and ammonia will now be reported as Nitrogen.

TABLE 2. Total Metals Monitoring - 24 hour Composite Samples

DATE	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	Iron
1/6/11	-	20.0	-	-	-	-	-	-	-	-	-	-	-	7,500
1/13/11	-	14.0	-	-	-	-	-	-	-	-	-	-	-	5,100
1/18/11	-	11.0	-	-	-	-	-	-	-	-	-	-	-	-
1/20/11	<2.0	23.0	<2.0	<2.0	4.8	9.8	<2.0	<0.20	56.0	12.0	<2.0	<4.0	<7.0	9,500
1/24/11	-	41.0	-	-	-	-	-	-	-	-	-	-	-	-
1/27/11	-	22.0	-	-	-	-	-	-	-	-	-	-	-	11,000
2/1/11	-	19.0	-	-	-	-	-	-	-	-	-	-	-	-
2/3/11	<2.0	25.0	<2.0	<2.0	11	12	<2.0	<0.20	77.0	14	<2.0	<2.0	13	9,200
2/7/11	-	31.0	-	-	-	-	-	-	-	-	-	-	-	-
2/10/11	-	31.0	-	-	-	-	-	-	-	-	-	-	-	7,600
2/14/11	-	22.0	-	-	-	-	-	-	-	-	-	-	-	-
2/17/11	-	56.0	-	-	-	-	-	-	-	-	-	-	-	6,600
2/23/11	-	15.0	-	-	-	-	-	-	-	-	-	-	-	-
2/24/11	-	15.0	-	-	-	-	-	-	-	-	-	-	-	5,200
2/28/11	-	18.0	-	-	-	-	-	-	-	-	-	-	-	-
3/4/11	-	25.0	-	-	-	-	-	-	-	-	-	-	-	12,000
3/8/11	-	19.0	-	-	-	-	-	-	-	-	-	-	-	-
3/10/11	<2.0	31.0	<2.0	<2.0	20.0	13.0	<2.0	<0.20	71.0	21.0	<2.0	<4.0	13.0	18,000
3/14/11	-	46.0	-	-	-	-	-	-	-	-	-	-	-	-
3/17/11	-	44.0	-	-	-	-	-	-	-	-	-	-	-	26,000
3/21/11	-	37.0	-	-	-	-	-	-	-	-	-	-	-	-
3/24/11	-	43.0	-	-	-	-	-	-	-	-	-	-	-	25,000
3/31/11	-	48.0	-	-	-	-	-	-	-	-	-	-	-	34,000
MRL	2.0	2.0	2.0	2.0	2.0	5.0	2.0	0.20	2.0	2.0	2.0	4.0	7.0	200
Permit Limit	None	100	None	None	None	None	None	None	None	100	None	None	None	None
Sewer Use Agreement	None	None	None	30	400	300	600	7	400	None	200	None	1000	None
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l

Metals analysis performed by TestAmerica (formerly NCA) & SGS Laboratories was obtained using ICP/MS (EPA Method 200.8) except Mercury by Cold Vapor (EPA Method 245.1).

Arsenic analysis performed by FHR were obtained using ICP/MS (EPA Method 200.7).

The highest laboratory MRL is reported.

**Note:**

1. The samples collected on 1/6/11, 3/4/11, and 3/17/11 are 24-hour composite grab samples.
2. The samples collected on 1/18/11, 1/24/11, 2/1/11, 2/7/11, 2/14/11, 2/23/11, 2/28/11, 3/8/11, 3/14/11, and 3/21/11 were instantaneous grab samples.
3. The analytical report for the sample collected on 2/17/11 shows 16.0 ug/l of total arsenic and 56.0 ug/l of dissolved arsenic. The lab ran the analyses for the total and dissolved arsenic samples twice to determine if a lab error had occurred during sample preparation and the same levels of arsenic were detected in the second run. Since it is not possible for the dissolved arsenic level to be greater than the total arsenic level, the total arsenic level is being reported as 56.0 ug/l.
4. The NPR arsenic analyses are being conducted to manage the ferric chloride usage in the CPS unit.
5. The mercury sample collected on February 23, 2011 was analyzed out of hold time.

**TABLE NOTES:**

MRL = Method Reporting Limit (Reporting Limit)

ug/l = micrograms per liter

- = Not Analyzed

ND = Not Detected above the MRL

**BOLD** = Exceedence



TABLE 3. BTEX Monitoring

Lab Data Reported During the Quarter										
	Benzene		Toluene		Ethylbenzene		Xylenes (-m, -p)		Xylenes (-o)	
DATE	Result	MRL	Result	MRL	Result	MRL	Result	MRL	Result	MRL
1/3/11	0.91	0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5
1/17/11	8.96	0.5	1.21	0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5
2/7/11	0.77	0.5	0.83	0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5
2/23/11	0.72	0.5	0.85	0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5
3/10/11	1.3	0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5
3/23/11	<0.5	0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l

Total BTEX Levels for the Quarter						
DATE	TOTAL BTEX	Benzene ug/l	Toluene ug/l	Ethylbenzene ug/l	Xylenes (-m, -p) ug/l	Xylenes (-o) ug/l
1/3/11	1.91	0.91	0.25	0.25	0.25	0.25
1/17/11	10.92	8.96	1.21	0.25	0.25	0.25
2/7/11	2.35	0.77	0.83	0.25	0.25	0.25
2/23/11	2.32	0.72	0.85	0.25	0.25	0.25
3/10/11	2.09	1.34	0.25	0.25	<0.5	0.25
3/23/11	1.25	0.25	0.25	0.25	0.25	0.25
Permit Limit	100 ug/l	None	None	None	None	None

BTEX samples were analyzed by the North Pole Refinery Laboratory using EPA Method 624 per verbal communication with EPA's Bruce Woods. To calculate the total BTEX value, parameter levels reported at <MRL were assigned the value of 1/2 the MRL.

Note--Duplicate results are reported for the NPR sample collected on 1/3/11, 1/17/11, 2/8/11, 2/23/11, 3/10/11 since the level in the duplicate was higher than the level in the sample.

TABLE 4. Phenol &amp; Cyanide Monitoring

DATE	Phenolics	Cyanide
2/3/11	0.030	ND
MRL	0.0070	0.030
Units	mg/l	mg/L

Phenols were analyzed by TestAmerica Laboratories using EPA Method 420.1.

Cyanide was analyzed by TestAmerica Laboratories using EPA 335.4

#### TABLE NOTES:

MRL = Method Reporting Limit (Reporting Limit)

mg/L = milligrams per liter

ug/l = micrograms per liter

NA = Not Analyzed

ND = Not Detected above the MRL

BOLD = Exceedence

TABLE 5A. Priority Pollutant Scan - Method 624 Volatiles (from 40 CFR Part 122, Appendix D, Table II)

Analyte	CAS Number	2/3/11	
		Result (ug/L)	MRL
Acrolein	107-02-8	ND	5.0
Acrylonitrile	107-13-1	ND	5.0
Benzene	71-43-2	1.0	1.0
Bromoform	75-25-2	ND	1.0
Carbon tetrachloride	56-23-5	ND	1.0
Chlorobenzene	108-90-7	ND	1.0
Chlorodibromomethane / Dibromochloromethane	124-48-1	ND	1.0
Chloroethane	75-00-3	ND	5.0
2-chloroethylvinyl ether	110-75-8	ND	10
Chloroform	67-66-3	ND	1.0
Dichlorobromomethane / Bromodichloromethane	75-27-4	ND	1.0
1,1-dichloroethane	75-34-3	ND	1.0
1,2-dichloroethane	107-06-2	ND	1.0
1,1-dichloroethylene / 1,1-dichloroethene	75-35-4	ND	1.0
1,2-dichlorobenzene	95-50-1	ND	1.0
1,3-dichlorobenzene	541-73-1	ND	1.0
1,4-dichlorobenzene	106-46-7	ND	1.0
1,2-dichloropropane	78-87-5	ND	1.0
cis-1,3-dichloropropylene / cis-1,3-dichloropropene	10061-01-5	ND	1.0
trans-1,3-dichloropropylene / trans-1,3-dichloropropene	10061-02-6	ND	1.0
Ethylbenzene	100-41-4	ND	1.0
Methyl bromide / Bromomethane	74-83-9	ND	5.0
Methyl chloride / Chloromethane	74-87-3	ND	5.0
Methylene chloride	75-09-2	ND	3.0
1,1,2,2-tetrachloroethane	79-34-5	ND	1.0
Tetrachloroethylene / Tetrachloroethene	127-18-4	ND <sup>^</sup>	1.0
Toluene	108-88-3	ND	1.0
1,2-trans-dichloroethylene / trans-1,2-Dichloroethene	156-60-6	ND	1.00
1,1,1-trichloroethane	71-55-6	ND	1.0
1,1,2-trichloroethane	79-00-5	ND	1.0
Trichloroethylene / Trichloroethene	79-01-6	ND	1.0
Vinyl chloride	75-01-4	ND	1.0

Sample Date: 2/3/2011; analyzed by TestAmerica Laboratories on 2/15/11

ND = Analyte NOT DETECTED at or above the reporting limit (MRL).

<sup>^</sup>ICV, CCV, ICB, CCB, ISA, ISB, CRI, CRA, DLCK, or MRL standard: Instrument related QC exceeds the control limits. Refer to the Case Narrative on page 4 of the lab report 580-24313-1 for a discussion on this qualifier.

TABLE 5B. Priority Pollutant Scan - Method 625 Acid compounds (from 40 CFR Part 122, Appendix D, Table II)

Analyte	CAS Number	02/03/11	
		Result (ug/L)	MRL
2,4,6-trichlorophenol	88-06-2	ND	2.9
2,4-dichlorophenol	120-83-2	ND	1.9
2,4-dimethylphenol	105-67-9	ND	4.8
2,4-dinitrophenol	51-28-5	ND	24
2-chlorophenol	95-57-8	ND	1.9
2-nitrophenol	88-75-5	ND	1.9
4,6-dinitro-o-cresol / 2-Methyl-4,6-dinitrophenol	534-52-1	ND	19
4-nitrophenol	100-02-7	ND	9.6
p-chloro-m-cresol / 4-Chloro-3-methylphenol	59-50-7	ND	1.9
Pentachlorophenol	87-86-5	ND	3.4
Phenol	62-53-3	ND	2.9

Sample Date: 2/3/2011; analyzed by TestAmerica Laboratories on 2/11/11

ND = Analyte NOT DETECTED at or above the reporting limit (MRL).

MRL - METHOD REPORTING LIMIT (Reporting Level at, or above, the lowest level standard of the Calibration Table)

TABLE 5C. Priority Pollutant Scan - Method 625 Base/Neutrals (from 40 CFR Part 122, Appendix D, Table II)

Analyte	CAS Number	2/3/11	
		Result (ug/L)	MRL
1,2,4-trichlorobenzene	120-82-1	ND	1.9
1,2-diphenylhydrazine (as azobenzene)	122-66-7 (103-33-3)	ND	4.8
2,4-dinitrotoluene	121-14-2	ND	1.9
2,6-dinitrotoluene	606-20-2	ND	1.9
2-chloronaphthalene	91-58-7	ND	0.29
3,3'-dichlorobenzidine	91-94-1	ND	9.6
3,4-benzofluoranthene / Benzo[b]Fluoranthene / Benzofluoroanthene	205-99-2	ND	0.38
4-bromophenyl phenyl ether	101-55-3	ND	1.9
4-chlorophenyl phenyl ether	7005-72-3	ND	1.9
Acenaphthene	83-32-9	ND	0.48
Acenaphthylene	208-96-8	ND	0.38
Anthracene	120-12-7	ND	0.19
Benzidine	92-87-5	ND	14
Benzo(a)anthracene	56-55-3	ND	0.29
Benzo(a)pyrene	50-32-8	ND	0.19
Benzo(g,h,i)perylene	191-24-2	ND	0.29
Benzo(k)fluoranthene / Benzofluoroanthene	207-08-9	ND	0.38
Bis(2-chloroethoxy)methane	111-91-1	ND	1.9
Bis(2-chloroethyl)ether	111-44-4	ND	1.9
Bis(2-chloroisopropyl)ether / Bis(2-chloro-1-methylethyl) ether	108-60-1	ND	1.9
Bis(2-ethylhexyl)phthalate	117-81-7	ND	14
Butylbenzyl phthalate	85-68-7	ND	2.9
Chrysene	218-01-9	ND	0.19
Dibenzo(a,h)anthracene	53-70-3	ND	0.29
Diethyl phthalate	84-66-2	ND	1.9
Dimethyl phthalate	131-11-3	ND	1.9
Di-n-butyl phthalate	84-74-2	ND	1.9
Di-n-octyl phthalate	117-84-0	ND	1.9
Fluorene	86-73-7	ND	0.29
Fluoranthene	206-44-0	ND	0.24
Hexachlorobenzene	118-74-1	ND	1.9
Hexachlorobutadiene	87-68-3	ND	2.9
Hexachlorocyclopentadiene	77-47-4	ND	9.6
Hexachloroethane	67-72-1	ND	2.9
Indeno(1,2,3-c,d)pyrene	193-39-5	ND	0.29
Isophorone	78-59-1	ND	1.9
Napthalene	91-20-3	ND	1.9
Nitrobenzene	98-95-3	ND	1.9
N-nitrosodimethylamine	62-75-9	ND	9.6
N-nitrosodi-n-propylamine	621-64-7	ND	1.9
N-nitrosodiphenylamine	86-30-6	ND	1.9
Phenanthrene	85-01-8	ND	0.38
Pyrene	129-00-0	ND	0.29

Sample Date: 2/3/2011 analyzed by TestAmerica Laboratories

ND = Analyte NOT DETECTED at or above the reporting limit (MRL).

MRL - METHOD REPORTING LIMIT (Reporting Level at, or above, the lowest level standard of the Calibration Table)

\*The LCS or LCSD exceeds the control limits or the RPD of the LCS and LCSD exceeds the control limits. Refer to the Case Narrative on page 4 of the lab report 580-23368-1 for a discussion on this qualifier.

TABLE 5D. Additional Method 624 Compounds Not Listed in 40 CFR Part 122, Appendix D, Table II

Analyte	CAS Number	2/3/11	
		Result (ug/L)	MRL
No additional compounds analyzed this quarter.			



TABLE 5E. Additional Method 625 Compounds Not Listed in 40 CFR Part 122, Appendix D, Table II

Analyte	CAS Number	2/3/11	
		Result (ug/L)	MRL
1,2-dichlorobenzene	95-50-1	ND	1.9
1,3-dichlorobenzene	63697-17-6	ND	1.9
1,4-dichlorobenzene	92-87-5	ND	1.9
2,4,5-Trichlorophenol	95-95-4	ND	1.9
2-Methylphenol	95-48-7	ND	1.9
Carbazole	86-74-8	ND	1.9
n-Decane	73138-29-1	ND	2.9
Dibenzofuran	214827-48-2	ND	1.9
Octadecane	593-45-3	ND	1.9

Sample Date: 2/3/2011 analyzed by TestAmerica Laboratories

No effluent limits are established by the permit for this compound.

ND = Analyte NOT DETECTED at or above the reporting limit (MRL).

MRL - METHOD REPORTING LIMIT (Reporting Level at, or above, the lowest level standard of the Calibration Table)

## Lab Report Cross Reference

Laboratory	Sample Date	Lab ID	Report Date	Analysis
FHR	1/3/11	0104	1/4/11	BTEX
FHR	1/17/11	0118-B	1/18/11	BTEX
FHR	1/18/11	0118-A	1/18/11	Arsenic
FHR	1/24/11	0125	1/25/11	Arsenic
FHR	2/1/11	0202	2/2/11	Arsenic
FHR	2/7/11	0208	2/8/11	BTEX
FHR	2/7/11	0210	2/10/11	Arsenic
FHR	2/14/11	0215	2/15/11	Arsenic
FHR	2/23/11	0224-B	2/24/11	BTEX
FHR	2/23/11	0224-A	2/24/11	Arsenic
FHR	2/28/11	0301	3/1/11	Arsenic
FHR	3/8/11	0308	3/8/11	Arsenic
FHR	3/10/11	0310	3/10/11	BTEX
FHR	3/14/11	0315	3/15/11	Arsenic
FHR	3/21/11	0322	3/22/11	Arsenic
FHR	3/23/11	0324	3/24/11	BTEX
TestAmerica	1/6/11	580-23903	1/11/11	Metals
TestAmerica	1/13/11	580-24033	1/20/11	Metals
TestAmerica	1/20/11	580-24108	1/25/11	Metals
TestAmerica	1/27/11	580-24182	2/1/11	Metals
TestAmerica	2/3/11	580-24299-1	2/8/11	Metals
TestAmerica	2/3/11	580-24299-2	4/8/11	Mercury
TestAmerica	2/3/11	580-24313	2/18/11	VOC/SVOC/Phenolics/Cyanide
TestAmerica	2/10/11	580-24402	2/15/11	Metals
TestAmerica	2/17/11	580-24543-1	2/23/11	Metals
TestAmerica	2/24/11	580-24649-1	3/1/11	Metals
TestAmerica	3/4/11	580-24839-1	3/10/11	Metals
TestAmerica	3/10/11	580-24931-1	3/15/11	Metals
TestAmerica	3/17/11	580-25105-1	3/22/11	Metals
TestAmerica	3/24/11	580-25220-1	3/29/11	Metals
TestAmerica	3/31/11	580-25375-1	4/5/11	Metals

## Wastewater Influent Grab Samples

Sample Date	Total Arsenic	Dissolved Arsenic	MRL	Method	Total Iron	Dissolved Iron	MRL	Units	Method	Lab
1/6/11	100.0	65.0	2.0	EPA 200.8	13,000	3,500	200	ug/l	EPA 200.8	TAM
1/13/11	79.0	36.0	2.0	EPA 200.8	19,000	350	200	ug/l	EPA 200.8	TAM
1/20/11	100.0	33.0	2.0	EPA 200.8	21,000	3,700	200	ug/l	EPA 200.8	TAM
1/27/11	100.0	48.0	2.0	EPA 200.8	17,000	6,000	200	ug/l	EPA 200.8	TAM
2/10/11	130.0	30.0	2.0	EPA 200.8	32,000	22,000	200	ug/l	EPA 200.8	TAM
2/17/11	270.0	37.0	2.0	EPA 200.8	76,000	27,000	200	ug/l	EPA 200.8	TAM
2/24/11	170.0	23.0	2.0	EPA 200.8	140,000	120,000	200	ug/l	EPA 200.8	TAM
3/4/11	91.0	58.0	2.0	EPA 200.8	29,000	1,800	200	ug/l	EPA 200.8	TAM
3/10/11	73.0	14.0	2.0	EPA 200.8	120,000	110,000	200	ug/l	EPA 200.8	TAM
3/17/11	180.0	32.0	2.0	EPA 200.8	48,000	18,000	200	ug/l	EPA 200.8	TAM
3/24/11	270.0	76.0	2.0	EPA 200.8	22,000	5,200	200	ug/l	EPA 200.8	TAM
3/31/11	160.0	57.0	2.0	EPA 200.8	19,000	5,800	200	ug/l	EPA 200.8	TAM

ND - Analyte not detected at or above the MRL

MRL - Method Reporting Limit of analytical method

TAM - TestAmerica Laboratory

NPR - North Pole Refinery Laboratory

-- Analysis not requested

## Wastewater Effluent Grab Samples

Sample Date	Total Arsenic	Dissolved Arsenic	MRL	Units	Method	Total Iron	Dissolved Iron	MRL	Units	Method	Lab
1/6/11	20.0	15.0	2.0	ug/l	EPA 200.8	7,500	230	200	ug/l	EPA 200.8	TAM
1/18/11	11.0	-	15.0	ug/l	EPA 200.7	-	-	-	ug/l	EPA 200.8	NPR
1/24/11	41.0	-	15.0	ug/l	EPA 200.7	-	-	-	ug/l	EPA 200.8	NPR
2/1/11	19.0	-	15.0	ug/l	EPA 200.7	-	-	-	ug/l	EPA 200.8	NPR
2/7/11	31.0	-	15.0	ug/l	EPA 200.7	-	-	-	ug/l	EPA 200.8	NPR
2/14/11	22.0	-	15.0	ug/l	EPA 200.7	-	-	-	ug/l	EPA 200.8	NPR
2/23/11	15.0	-	15.0	ug/l	EPA 200.7	-	-	-	ug/l	EPA 200.8	NPR
2/28/11	18.0	-	15.0	ug/l	EPA 200.7	-	-	-	ug/l	EPA 200.8	NPR
3/4/11	25.0	16.0	2.0	ug/l	EPA 200.8	12,000	520.0	200	ug/l	EPA 200.8	TAM
3/8/11	19.0	-	15.0	ug/l	EPA 200.7	-	-	-	ug/l	EPA 200.8	NPR
3/14/11	46.0	-	15.0	ug/l	EPA 200.7	-	-	-	ug/l	EPA 200.8	NPR
3/17/11	44.0	21.0	2.0	ug/l	EPA 200.8	26,000	ND	200	ug/l	EPA 200.8	TAM
3/21/11	37.0	-	15.0	ug/l	EPA 200.7	-	-	-	ug/l	EPA 200.8	NPR

ND - Analyte not detected at or above the MRL

MRL - Method Reporting Limit of analytical method

TAM - TestAmerica Laboratory

NPR - North Pole Refinery Laboratory

-- Analysis not requested

- Note:**
1. All grab samples analyzed by Test America are 24-hour composite grab samples.
  2. All grab samples analyzed by NPR are immediate grab samples--24 hour composite grab samples.
  3. NPR analyses are being conducted to manage the ferric chloride usage in the CPS Unit

## Wastewater Effluent 24-Hour Composite Samples

Sample Date	Total Arsenic	Dissolved Arsenic	MRL	Method	Total Iron	Dissolved Iron	MRL	Units	Method	Lab
1/13/11	14.0	12.0	2.0	EPA 200.8	5,100	210	200	ug/l	EPA 200.8	TAM
1/20/11	23.0	23.0	2.0	EPA 200.8	9,500	9,500	200	ug/l	EPA 200.8	TAM
1/27/11	22.0	14.0	2.0	EPA 200.8	11,000	290	200	ug/l	EPA 200.8	TAM
2/10/11	31.0	23.0	2.0	EPA 200.8	7,600	350	200	ug/l	EPA 200.8	TAM
2/17/11 <sup>a</sup>	56.0	16.0	2.0	EPA 200.8	6,600	5,000	200	ug/l	EPA 200.8	TAM
2/24/11	15.0	13.0	2.0	EPA 200.8	5,200	270	200	ug/l	EPA 200.8	TAM
3/10/11	31.0	20.0	2.0	EPA 200.8	18,000	ND	200	ug/l	EPA 200.8	TAM
3/24/11	43.0	18.0	2.0	EPA 200.8	25,000	ND	200	ug/l	EPA 200.8	TAM
3/31/11	48.0	19.0	2.0	EPA 200.8	34,000	520	200	ug/l	EPA 200.8	TAM

ND - Analyte not detected at or above the MRL

MRL - Method Reporting Limit of analytical method

TAM - TestAmerica Laboratory

**Note:** <sup>a</sup> The analytical report for the effluent sample collected on 2/17/11 shows 16.0 ug/l of total arsenic and 56.0 ug/l of dissolved arsenic. The lab ran the analyses for the total and dissolved arsenic samples twice to determine if a lab error had occurred during sample preparation and the same levels of arsenic were detected in the second run. Since it is not possible for the dissolved arsenic level to be greater than the total arsenic level, the total arsenic level is being reported as 56.0 ug/l and the dissolved arsenic level is being reported as 16.0 ug/l.

-- Analysis not requested





For Internal Purposes / Files Only

## FHR Alaska – Internal Development & Approval Form for Written Representations

Submittal Title: Quarterly Wastewater Report

Date Required (Compliance Date): 4/13/11

### Written Representations List Verification

Is this submittal on the "Written Representations List"? X Yes        No

If the item is not on the list, request it be added with the Gov. Interaction Compliance System Owner (Brian Roos for FHR Alaska)

### Commitments:

If Applicable: Action items contained within this submittal are summarized in the attached LYNX Findings / Action Items Entry Form. These will be entered into LYNX upon final approval and sign off of the submittal.

### Review / Sign offs

The following individuals provided input, development, or review of the corresponding submittal. By their signature below, they acknowledge:

- they are aware that the information/data they have provided has been relied upon or incorporated within a communication to a representative of a governmental entity or agency;
- they are aware that any false, fictitious, or fraudulent statements or claims may subject them, or Flint Hills Resources, to criminal, civil, or administrative penalties;
- to the best of their knowledge, the information/data that they have provided is accurate and complete; and
- they believe they have made the inquiry necessary to assure that the information/data is accurate and complete.

Content / Data Sources  
(as applicable)

Quarterly Wastewater Report Cover Letter

Date: Apr. 13, 2011

Quarterly Wastewater Report

Date: Apr. 13, 2011

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